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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,799	08/18/2003	Michael W. Halpin	ASMEX.72CP2D3CD	3691
20995	7590	07/13/2005	EXAMINER	
KNOBBE MARTENS OLSON & BEAR LLP			KACKAR, RAM N	
2040 MAIN STREET			ART UNIT	
FOURTEENTH FLOOR			PAPER NUMBER	
IRVINE, CA 92614			1763	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/642,799

Applicant(s)

HALPIN ET AL.

Examiner

Ram N. Kackar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 113-119 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 113-119 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/18/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Inventorship

1. In view of the papers filed 12/5/2005, the inventorship in this nonprovisional application has been changed by the deletion of Frank B. Van Bilsen, Matthew Goodman, Glenn Hartmann and Jason M. Layton.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 113-115 and 119 are rejected under 35 U.S.C. 102(b) as being anticipated by deBoer et al (US 5117769).**

deBoer et al disclose a method to support a wafer on a susceptor (Fig 1-252), gas flow through the susceptor between regions above and below the susceptor (Fig 2 and Col 3 lines 48-57), plurality of symmetrical support arms which extend radially outward and upward from upper section of a vertical shaft (Fig3 46,47) and means of rotation of the susceptor about the central vertical axis of the shaft (Abstract). Further deBoer et al teach heating means using

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radiant heating and the support arms and shaft of quartz which is transparent to radiant energy (Col 7 lines 1-10).

4. Claims 113-117 and 119 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al (GB 2181458).

Johnson et al disclose a method to support a wafer on a susceptor (Fig 4), gas flow through the susceptor between regions above and below the susceptor (Fig 4) with passage having inlet at lower surface and outlet at upper surface, plurality of symmetrical support arms which extend radially outward and upward from upper section of a vertical shaft (81), spacers to hold wafer (16) and means of rotation of the susceptor about the central vertical axis of the shaft (Abstract). Further Johnson et al teach heating means using radiant heating and the support arms and shaft of a material transparent to radiant energy (Page 3 lines 99-101).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 116 and 117 are rejected under 35 U.S.C. 103(a) as being unpatentable over deBoer et al (US 5117769) in view of Yusuke Harada (JP 02243798).

deBoer et al is disclosed above.

deBoer et al do not disclose plurality of spacers to support the wafer and gas flow passages in the susceptor having an upper opening at upper surface and lower opening at lower surface.

Yusuke Harada discloses plurality of spacers (Fig 1-34) to support the wafer and gas flow passages in the susceptor having an upper opening at upper surface and lower opening at lower surface (35). Yusuke Harada teach that selective CVD is possible due to blowing non-reactive gas against the wafer from the rear (Abstract).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have non reactive purge gases directly at the back of the wafer as taught by Yusuke Harada and to have spacers in order to allow the non reactive gases exit from the side to protect the wafer from unwanted deposition.

7. Claims 113- 117 and 119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ilya Perlov (US 5421893) Yusuke Harada (JP 02243798).

Ilya Perlov disclose a method to support a wafer on a susceptor (Fig 2a) in a reactor to process substrates surface with reactant gases (Col 1 lines 55-60), plurality of symmetrical support arms which extend radially outward and upward from upper section of a vertical shaft (56) and means of rotation of the susceptor about the central vertical axis of the shaft (Col 1 lines 12-15). Further Ilya Perlov teaches heating means using radiant heating and the support arms and shaft of quartz, which is transparent to radiant energy (Col 4 lines 3-15).

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Ilya Perlov does not disclose plurality of spacers to support the wafer and gas flow passages in the susceptor having an upper opening at upper surface and lower opening at lower surface to allow gas flow from lower region to upper region.

Yusuke Harada discloses plurality of spacers (Fig 1-34) to support the wafer and gas flow passages in the susceptor having an upper opening at upper surface and lower opening at lower surface (35). Yusuke Harada teach that selective CVD is possible due to blowing non-reactive gas against the wafer from the rear (Abstract) which prevents unwanted deposition at the back.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have non reactive purge gases directly at the back of the wafer as taught by Yusuke Harada and to have spacers in order to allow the non reactive gases exit from the side to protect the wafer from unwanted deposition.

8. Claims 118 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (GB 2181458) in view of Hardy et al (US 5343012) or alternatively in view of Kazuo Fukazawa (JP 05013350).

Johnson et al is disclosed above.

Johnson et al do not disclose the gas passages in the susceptor to include horizontal channels.

It is obvious however that the horizontal orientation of gas passages helps distribute gas to outlets opening in the upper surface. Hardy et al disclose gas passages in a susceptor which include horizontal channel.

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Kazuo Fukazawa similarly discloses horizontal sections of gas passages for the same reason (Fig 1, 3 and 5).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have horizontal sections of gas passages in order to distribute gas evenly at the upper surface.

9. Claims 118 is rejected under 35 U.S.C. 103(a) as being unpatentable over deBoer et al (US 5117769) in view of Yusuke Harada (JP 02243798) as applied to claims 117 and further in view of Hardy et al (US 5343012) or alternatively in view of Kazuo Fukazawa (JP 05013350).

deBoer et al in view of Yusuke Harada is disclosed above.

deBoer et al modified in view of Yusuke Harada do not disclose the gas passages in the susceptor to include horizontal channels.

It is obvious however that the horizontal orientation of gas passages helps distribute gas to outlets opening in the upper surface. Hardy et al disclose gas passages in a susceptor which include horizontal channel.

Kazuo Fukazawa similarly discloses horizontal sections of gas passages for the same reason (Fig 1, 3 and 5).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have horizontal sections of gas passages in order to distribute gas evenly at the upper surface.

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10. Claims 118 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ilya Perlov (US 5421893) in view of Yusuke Harada (JP 02243798) as applied to claims 113- 117 and 119 and further in view of Hardy et al (US 5343012) or alternatively in view of Kazuo Fukazawa (JP 05013350).

Ilya Perlov in view of Yusuke Harada is disclosed above.

Ilya Perlov modified in view of Yusuke Harada do not disclose the gas passages in the susceptor to include horizontal channels.

It is obvious however that the horizontal orientation of gas passages helps distribute gas to outlets opening in the upper surface. Hardy et al disclose gas passages in a susceptor which include horizontal channel.

Kazuo Fukazawa similarly discloses horizontal sections of gas passages for the same reason (Fig 1, 3 and 5).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have horizontal sections of gas passages in order to distribute gas evenly at the upper surface.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ram Kackar

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